Nova Scotia

HAZARDOUS WASTES IN Nova Scotia

A BACKGROUND PAPER

July 1986

MINISTER'S TASK FORCE ON
HAZARDOUS WASTE MANAGEMENT

Honourable G. J. LeBlanc
Minister of Environment

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IN
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INTRODUCTION

In June 1985, a Task Force on Hazardous Waste Management was appointed by the Minister of the Environment to examine the hazardous waste problem in Nova Scotia and determine the means by which a management plan could be developed.

Using existing information from provincial and national sources the Task Force examined the volumes of hazardous wastes generated, as well as their sources and current disposal methods. The Task Force also studied existing institutional and administrative practices for managing hazardous wastes.

The Task Force completed its initial activities in October, 1985 and reported to the Minister. In the second phase, municipalities, industries, organizations and individuals who have an interest in hazardous waste management in Nova Scotia will be consulted. It is the responsibility of the Task Force, after consultation with affected and interested groups, to propose additional initiatives to enable the Province to manage hazardous wastes.

The Task Force has prepared this document to provide background information on hazardous wastes in Nova Scotia. We hope that this information will help to promote an understanding of the scope of the hazardous wastes problem in Nova Scotia and of those initiatives that have been taken to address this problem. We also hope that it will suggest initiatives that can be taken to ensure safe and efficient long-term management.

Of major concern may be the public health effects associated with unprotected and involuntary exposure to these substances. Closely allied with these questions is the very real and legitimate concern expressed by the public about these products and their persistence in the environment. Unfortunately, much of the public understanding of hazardous wastes relies upon media reports, which are necessarily brief and do not always present an accurate assessment of the dangers. For example, modern equipment enables scientists to detect minute quantities of many substances that are, at some level, hazardous. Frequently, reporting of these occurrences does not provide a context for the public to evaluate the degree of hazard. Thus, the public perception develops that any exposure to any quantity of certain substances will endanger human health.

One effect of this faulty perception is to make the whole field of chemical management appear too fraught with risk to allow a reasonable level of safety. Another is to divert public attention from other, less immediately sensational but possibly more important, environmental issues. Public concern becomes exaggerated when responsible agencies do not communicate regularly with the general public and the news media. The public thus is led to believe that information related to dangerous chemicals/hazardous wastes is being withheld, or that only "dangerous" situations merit reporting.

Everyone, it would appear, has an interest in ensuring the comprehensive management of these materials "from the cradle to the grave". This includes product developers and manufacturers, users, labour, government and the general public. Comprehensive management will be achieved only with consideration of the interests and needs of all these groups, and with their active participation.

II
BACKGROUND

Each day, Nova Scotians use thousands of chemicals. No household, industry, business or institution can function without using materials that, when misused, can represent a threat to the environment or human safety. When dangerous chemicals can no longer be used for their intended purposes, they are known as "hazardous wastes". Usually, dangerous chemicals and hazardous wastes are designated as such because of one of the following characteristics: extreme flammability, corrosiveness, violent reaction with other materials, toxicity, or persistence in the environment.

Society's relationship with these products began early in this century. The role of chemicals in protecting crops and controlling disease seemed to herald an era in which humans would no longer be at the mercy of a hostile environment. With the 1960's and the recognition that these products were, themselves, a source of danger to the environment, including to humans, a stong anti-chemical bias developed among some sectors of society. In the 1980's, we are gaining a new understanding of the benefits and disadvantages of the widespread use of dangerous chemicals. While few people would consider returning to life without chemicals, equally few see chemicals as universally benign solutions to human problems. Certainly, society has learned that the benefits of chemicals carry equivalent responsibilities for their control and management.

The issue continues to grow more complex as new products and new applications are developed. Each year approval is requested for 500 to 1,000 new chemical products. Every one of these products requires careful and extended testing to determine, not only its individual impacts, but its reactions with other chemicals and its persistence in the environment. The increased sophistication of these materials may enhance agricultural or industrial productivity or provide major medical advances. But the very complexity and quantity of these materials mean that we need more rigorous standards of handling and disposal.

In some instances, such as the pollution of the Niagara River in Ontario or the contamination of water supplies by dry-cleaning residue in Nova Scotia, we have begun to see the implications of managing these products improperly. Continued failure to respond to the need for management of dangerous chemicals and hazardous wastes will lead to other consequences, including possible jeopardy to the health of workers who handle the materials. Careless or unacknowledged disposal can lead to water contamination or can render certain land uses impossible for many years.

III
VOLUMES, SOURCES AND DISPOSAL METHODS FOR HAZARDOUS WASTES

Determining the quantities of hazardous wastes generated in Nova Scotia is difficult. Two separate reports in fact have arrived at significantly different conclusions regarding the volumes produced by various sectors. The *Maritime Hazardous Waste Inventory Report* (1981) prepared by Environment Canada in cooperation with the Provinces of Nova Scotia, New Brunswick and Prince Edward Island, estimated the volume of hazardous wastes produced in Nova Scotia at 5 250 tonnes. A second report, the *Canadian Inventory of Hazardous Wastes* (1982) by the consulting firm Gore and Storrie, estimated Nova Scotia's hazardous waste problem at 107 570 tonnes. The most significant discrepancy in estimates between these two reports occurs in the chemical sector. Gore and Storrie estimated production by this industry at 69 080 tonnes while the Maritime Inventory estimated production at 20 455 tonnes.

To place Nova Scotia's hazardous waste production in perspective, Gore and Storrie calculate that Canada produces 3 280 863 tonnes of hazardous waste annually. This report ranks Nova Scotia fifth in hazardous waste production in the Canadian provinces. Table I provides a list of provinces and territories with their contribution to the total volume of hazardous wastes generated in Canada.

TABLE I

Provincial/Territorial Hazardous Waste Volumes
(Gore and Storrie, 1982)

Province	Tonnes
1. Ontario	1 605 107
2. Quebec	951 917
3. British Columbia	273 245
4. Alberta	215 944
5. Nova Scotia	106 857
6. New Brunswick	46 885
7. Saskatchewan	30 144
8. Manitoba	29 458
9. Newfoundland	20 719
10. Prince Edward Island	406
11. Yukon	1
12. Northwest Territories	0
TOTAL	3 280 863

The *Maritime Hazardous Waste Inventory Report* identified 216 potential hazardous waste generators in Nova Scotia. The industrial sectors primarily responsible for hazardous wastes are the petroleum and coal products industries (oily wastes), the chemical industries (acid wastes) and the pulp and paper industries (alkali wastes). Other industrial sectors that contribute to this waste stream include non-metallic minerals, textile, rubber, electrical, metal fabricating and transport industries.

The companies surveyed for the *Maritime Hazardous Waste Inventory Report* employ a variety of methods for treating or handling their hazardous wastes. These include settling ponds, landfarming, landfilling, recycling, incineration, sewerage and on-site treatment. Some companies also store and stockpile their wastes, while a few ship their wastes to out-of-province facilities.

The *Maritime Hazardous Waste Inventory Report* estimated that 38% of the hazardous wastes generated in Nova Scotia were treated or handled in an acceptable manner. Sixty-two percent - the majority - are not acceptably treated or handled. Table II depicts the waste treatment practices followed in Nova Scotia and indicates their acceptability and unacceptability.

TABLE II

Waste Disposal Methods of Inventoried Companies in Nova Scotia
(Maritimes Hazardous Waste Inventory Report (1981))

Method	**Acceptable/Unacceptable (Tonnes)**	
1. Lagoon/Settling Pond	0	15 547
2. Landfarming	9 947	0
3. Landfill/Dumps	3 096	1 915
4. Storage	62	626
5. Stockpile	0	195
6. Recycle	228	0
7. Incineration	240	14
8. On-Site Treatment	56	10
9. Sewerage	0	28
10. Out-of-Province	?	?
NOVA SCOTIA	38%	62%

The report estimated that a continuation of existing acceptable management practices, combined with the improvement of present techniques and the implementation of reuse and recycling programs, could potentially reduce the quantity of wastes receiving unacceptable management to 4 000 tonnes, or 8% of the estimated annual total for the province. To be managed effectively the remaining 4 000 tonnes would require treatment at a specialized facility. The four broad categories of options considered in the Maritime Inventory Report and their effectiveness in managing hazardous wastes are summarized in Table III.

TABLE III

Waste Management Options for Nova Scotia
(Maritime Hazardous Waste Inventory Report (1985))

Options	Tonnes	%	Cumulative
1. Continue Existing Methods	19 931	38	38
2. Upgrade Facilities	26 666	51	89
3. Reuse-Recycle	1 626	3	92
4. Special Treatment/Facility	4 227	8	100

Of the 4 000 tonnes requiring specialized treatment, 52% originated from Halifax County. Richmond County contributed 20%, while Cape Breton, Pictou and Colchester were each responsible for six percent. The remaining counties produce relatively small or no quantities of hazardous wastes requiring specialized treatment. Richmond County's contribution is likely significantly less with the closure of the AECL heavy water plant and the Gulf Oil Refinery.

To some extent, deficiencies in inventory data are addressed by a study, released in June, 1986, of hazardous waste generators in the Metropolitan Halifax-Dartmouth area. As noted, the metropolitan area is responsible for the majority of wastes requiring specialized handling.

Neither the Maritime Hazardous Waste Inventory nor the Gore and Storrie Report provide detailed information on small-scale hazardous waste generators such as furniture refinishers, photo processors and many others. Although these sources may not generate significant quantities of hazardous wastes on an individual as is, it is feared their collective impact has important environmental implications. These sources are dispersed throughout the province.

IV
CONTROLLING HAZARDOUS WASTES

The federal and provincial governments have regulatory control over various aspects of dangerous chemicals and hazardous waste management. The federal government derives authority from its responsibility for international and interprovincial commerce. As such, the federal government plays a significant role in the regulation of new chemicals entering Canada and the manufacture of chemicals, either for sale in Canada or for export. Federal jurisdiction also extends to the interprovincial and international transport of dangerous chemicals and hazardous wastes, and to intraprovincial transport of these substances by carriers under federal jurisdiction, such as aircraft.

The province, through its responsibility for matters of a local interest, can regulate the sale, distribution, use and storage of dangerous chemicals in the province and the transport, storage and disposal of hazardous wastes in its own jurisdiction. Hazardous waste management is essentially a provincial responsibility.

A number of initiatives have been launched by provinces and the federal government to ensure the adequate management of dangerous chemicals and hazardous wastes from "the cradle to the grave". Some provinces, for example Alberta and Manitoba, have adopted dangerous goods legislation to control the handling, storage and disposal of dangerous goods and hazardous wastes. Ontario and Alberta have adopted legislation to establish crown corporations to operate special waste disposal facilities for hazardous wastes.

During the 1986 session of the Legislature, Environment Minister Guy J. LeBlanc introduced legislation to control dangerous chemicals and hazardous wastes. The Dangerous Goods and Hazardous Waste Management Act was proclaimed in July, 1986. The legislation clarifies Ministerial authority and responsibility for the management of hazardous materials. Although it clearly authorizes the Minister to take action to deal with an emergency or immediate need, the Act does not have specific regulations. These will be based on the Task Force Recommendations, following wide public consultation, on long term management.

Nationally, proposed changes to the Environmental Contaminants Act are being considered by the two senior levels of government. Some of the changes under consideration include revisions to the reporting mechanisms, premarket notification, a required testing period for new chemicals, maintenance of inventories, and increased authority to issue orders respecting the use, handling and disposal of chemicals. Nova Scotia is a participant in these discussions.

The federal government is working with member countries of the Organization for Economic Cooperation and Development (OECD). OECD has developed standardized test guidelines and good laboratory practice procedures to ensure the improved testing of new chemicals. Given Canada's role as a net importer of industrial chemicals, improved testing procedures in other countries are critical to ensuring the safety of imported products and to minimizing test costs.

Several national committees have been at work since 1979 to improve all aspects of dangerous chemicals/hazardous wastes management. These efforts are a consequence of a decision by the Canadian Council of Resource and Environment Ministers (CCREM) to establish a Task Force on Toxic Substances, which eventually led to the establishment of the permanent Toxic Chemicals Steering Committee. This committee, of which Nova Scotia is a member, is responsible to CCREM for monitoring progress towards improved management of dangerous chemicals and hazardous wastes, and for ensuring a continuing information exchange on toxic substances.

The provinces and the federal government have also established a Federal/Provincial/Territorial Hazardous Waste Management Committee. The committee acts as a forum for information exchange on hazardous wastes and the practices and techniques for hazardous waste management. The committee played an active role in helping to establish the manifest system and criteria listing for the federal Transportation of Dangerous Goods Act. The committee was also responsible for initiating abandoned waste site studies in Canada, similar to the one recently completed for Nova Scotia.

An Atlantic Canada/Quebec Task Force has been established to address regional waste management issues, in particular the management of waste PCBs (polychlorinated biphenyls). This mechanism should also prove useful in discussions leading to the establishment of disposal facilities in Quebec. The current plan is to serve Eastern Canada.

Provincial governments in the Atlantic Region have been cooperating since early 1980 on hazardous wastes management issues. The Atlantic Environment Ministers Committee and the Steering Committee of Officials were instrumental in preparing the *Maritime Hazardous Wastes Inventory Report*.

V
ISSUES

In the coming months the Task Force will examine the issues associated with dangerous goods/hazardous waste management in Nova Scotia. The Task Force will examine the adequacy of existing management practices and facilities, and the necessity for any additional facilities in Nova Scotia or the Eastern Canadian region. Related social, financial and technical issues will also be examined.

Intergovernmental cooperation at the municipal, provincial and national levels will be required to ensure the effective coordination of legislation, regulations and programs. The Task Force will examine the necessity for changes and the opportunities for improved coordination in this area.

Finally, the Task Force believes that public understanding and support of dangerous goods/hazardous waste management is critical to ensuring the development of programs and facilities. The Task Force will attempt to foster this understanding by establishing a process in which opinions and concerns can be shared to develop common goals and objectives—and mutually satisfactory measures to achieve them.

CHAIRMAN

Paul Buxton, P.Eng., is an Executive Member of the Environmental Control Council. He is Executive Director of the Annapolis Royal Development Commission, responsible for the restoration work in the Town. He has been responsible for the management and supervision of construction projects throughout Canada.

MEMBERS

Audrey Manzer, Dartmouth, has been Chairman of the Dartmouth Lakes Advisory Board for fifteen years, and has promoted constructive community participation on environmental and other issues. She is also active at the local and national level in community organizations such as the YWCA, and the Canadian Federation of University Women.

James Harrison, Dartmouth, is retired from the position of Environmental Officer at the Dartmouth Imperial Oil refinery. He is also a past member of the Nova Scotia Control Council, a past president of the Dartmouth Chamber of Commerce, and a Fellow of the Chemical Institute of Canada.

Mayor Harry Cook, Bridgewater, is the representative of the Union of Nova Scotia Municipalities to the provincial Environmental Control Council. He was a founding member of and continues to participte on the local watershed advisory committee. Mr. Cook has also been the operator of a petroleum delivery company in Bridgewater.

James MacDonald, Sydney, is the Executive Secretary and past Chairman of the Nova Scotia Environmental Control Council. He is the former President of Island Construction Ltd., and has been active in community and professional associations, including the Sydney and Industrial Cape Breton Boards of Trade, and the Cape Breton Construction Association. Mr. MacDonald is a member of the Board of Directors, Nova Scotia Power Corporation.

Duncan MacKay, P.Eng.,Halifax, is an environmental engineer with the Department of the Environment. He has been involved in hazardous waste management for several years.

Minister's Task Force
on Hazardous Waste Management
P.O Box 2107
Halifax, Nova Scotia B3J 3B7
(902) 424-5300

Chairman
Paul Buxton, P.Eng., Annapolis Royal

Members
Audrey Manzer, Dartmouth

James Harrison, Dartmouth

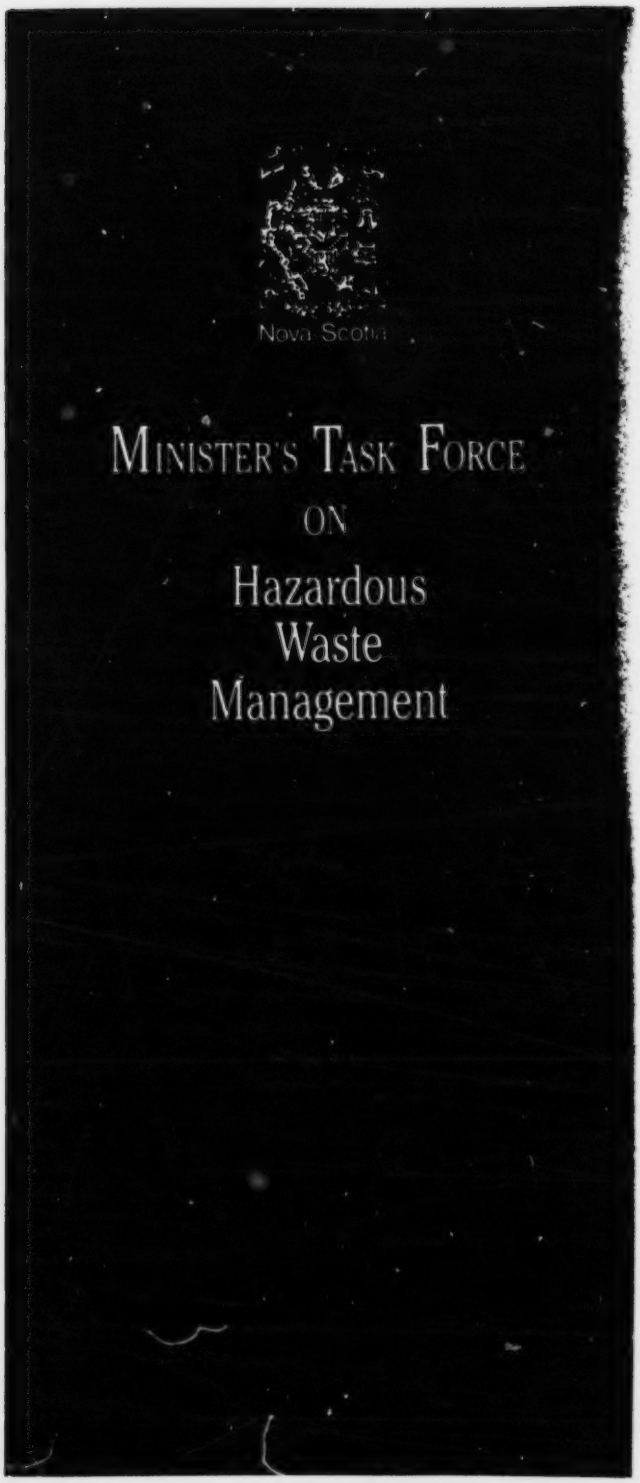
Mayor Harry Cook, Bridgewater

James MacDonald, Sydney

Duncan MacKay, P.Eng., Halifax
(NS Department of the Environment)

Nova Scotia
Department of Environment

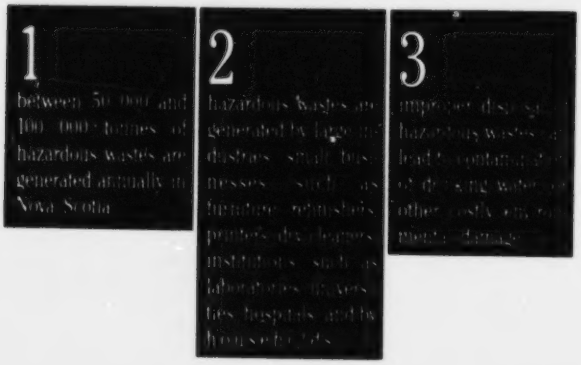
Honourable Guy J. LeBlanc
Minister



HAZARDOUS WASTE: IN EVERYONE'S BACKYARD

THE MANAGEMENT OF HAZARDOUS WASTES IS ONE OF THE MOST IMPORTANT ENVIRONMENTAL QUESTIONS OF THIS DECADE.

If you think that hazardous wastes don't concern you, think about the following:


1
between 50 000 and 100 000 tonnes of hazardous wastes are generated annually in Nova Scotia
2
hazardous wastes are generated by large industries, small businesses such as furniture refinishers, printers, dry cleaners, institutions such as laboratories, universities, hospitals, and by households
3

We all have a stake in ensuring that hazardous wastes are managed responsibly and with the least possibility for environmental damage.

In July 1986, the Dangerous Goods and Hazardous Wastes Act was proclaimed in Nova Scotia. The Act serves to establish and clarify the provincial government's responsibility and authority to manage hazardous wastes, and ensures that the Minister has adequate power to act in an emergency. The legislation does **not** establish a long-term management plan. The management plan will be developed in consultation with interested Nova Scotians, to realistically meet the needs and address the concerns of the business community and the general public.

The Minister of the Environment has instructed a Task Force, representing the Environmental Control Council, business, industry, municipalities, and citizen organizations, to conduct a wide consultation program. During the next few months, the Task Force will be seeking expressions of interest from organiations and individuals.

PUBLIC CONSULTATION

Beginning Autumn, 1986, the Task Force will meet with interested parties throughout the province. The purpose of these sessions will be to learn about the concerns - environmental, social, and financial - and the suggestions of Nova Scotians about the management of wastes.

The Task Force is interested in hearing from large and small businesses, municipal agencies, professional associations, environmental and community groups, waste handlers, researchers, institutions, or any organization or individual with an interest in the issue.

Meeting locations will be identified on the basis of expressed interest. The Task Force will meet interested people individually and in an "open house" in each location.

Written submissions will be accepted.

THE TASK FORCE MANDATE

THE MINISTER HAS INSTRUCTED THE TASK FORCE TO CONDUCT A COMPREHENSIVE REVIEW OF ALL ASPECTS OF MANAGEMENT OF DANGEROUS GOODS AND HAZARDOUS WASTES.

The Task Force will be looking to Nova Scotians to identify their concerns, to share experiences, and to make recommendations for long term management. Some obvious questions are:

1. Who is responsible for managing hazardous wastes - government? industry?
2. Does Nova Scotia need special facilities for the treatment and disposal of hazardous waste? If so, what?
3. On what basis would and should a community accept such facilities?
4. Who should finance and operate management facilities and procedures? industry? government?
5. What opportunities are there for cooperation - between businesses? - between provinces?
6. What opportunities exist for recycling or reuse, and how can they be enhanced?
7. What kind of public/consumer cost is acceptable?
8. How should waste handlers be regulated?
9. What protective measures should be in place during transport, storage and use of dangerous chemicals?